

**[CLAIMS]**

[Claim 1] An outer rotor having a rotor frame with a bottom, a side wall extended from a circumference of the bottom substantially perpendicular to the bottom, and magnets mounted on an inside of the side wall, wherein the bottom of the rotor frame is elevated in a direction of extension of the side wall on the whole.

[Claim 2] The outer rotor as claimed in claim 1, wherein the outer rotor is constructed of steel plate.

[Claim 3] The outer rotor as claimed in claim 2, wherein the rotor frame includes a plurality of cooling fins projected from the bottom to an outside of the rotor frame, and a plurality of pass through holes in the bottom.

[Claim 4] The outer rotor as claimed in claim 3, wherein the bottom has a height of the elevation of with respect to a lower end of the side wall the same with a height of the projection of the cooling fin from the bottom, substantially.

[Claim 5] The outer rotor as claimed in claim 4, wherein the cooling fins and the pass through holes are formed by lancing.

[Claim 6] The outer rotor as claimed in claim 3, wherein the cooling fin is sloped by an angle from the bottom of the rotor frame.

[Claim 7] The outer rotor as claimed in claim 3, wherein the cooling fin is formed at one side of the pass through hole on an opposite side of a rotation direction of the motor at the time of spinning.

[Claim 8] The outer rotor as claimed in claim 7, wherein the cooling fin has an acute angle from a horizontal plane of the pass through hole in the bottom of the rotor frame.

[Claim 9] The outer rotor as claimed in claim 3, wherein the cooling fin is sloped by an angle  $\alpha$  from the bottom of the rotor frame, wherein cooling fins at adjacent pass through holes are formed in opposite directions, alternately.

[Claim 10] The outer rotor as claimed in claim 9, wherein the cooling fin has an acute angle from a horizontal plane of the pass through hole in the bottom of the rotor frame.

[Claim 11] An outer rotor having a rotor frame with a bottom, a side wall extended

from a circumference of the bottom substantially perpendicular to the bottom, and magnets mounted on an inside of the side wall, wherein the bottom of the rotor frame is elevated in a direction of extension of the side wall on the whole, and the rotor frame includes a plurality of cooling fins projected from the bottom to a direction opposite to a direction of extension of the side wall, and a plurality of pass through holes formed in the bottom.

[Claim 12] The outer rotor as claimed in claim 11, wherein the bottom has a height of the elevation of with respect to a lower end of the side wall the same with a height of the projection of the cooling fin from the bottom, substantially.

[Claim 13] The outer rotor as claimed in claim 11, wherein the cooling fin is sloped by an angle from the bottom of the rotor frame.

[Claim 14] The outer rotor as claimed in claim 13, wherein the cooling fin is formed at one side of the pass through hole on an opposite side of a rotation direction of the motor at the time of spinning.

[Claim 15] The outer rotor as claimed in claim 14, wherein the cooling fin has a right angle, upright, from the bottom of the rotor frame, substantially.

[Claim 16] The outer rotor as claimed in claim 14, wherein the cooling fin has an acute angle from a horizontal plane of the pass through hole in the bottom of the rotor frame.

[Claim 17] An outer rotor having a rotor frame with a bottom, a side wall extended from a circumference of the bottom substantially perpendicular to the bottom, and magnets mounted on an inside of the side wall, wherein the bottom of the rotor frame is elevated in a direction of extension of the side wall on the whole, and the rotor frame includes a plurality of cooling fins projected from the bottom to a direction opposite to a direction of extension of the side wall, and a plurality of pass through holes formed in the bottom by lancing at the same time with the pass through holes.

[Claim 18] The outer rotor as claimed in claim 17, wherein the cooling fins are formed opposite to each other with respect to adjacent pass through hole.

[Claim 19] The outer rotor as claimed in claim 17, wherein the cooling fin is at one side of the pass through hole opposite to a rotation direction of the motor at the time of spinning, for easy air flow toward the pass through hole.

[Claim 20] The outer rotor as claimed in claim 19, wherein the cooling fin has an acute angle from a horizontal plane of the pass through hole in the bottom of the rotor frame.